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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,725	02/04/2004	Larrie A. Deardurff	200209310-1	5630
22879 7590 11/28/2007 HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400			EXAMINER MARTIN, LAURA E	
			ART UNIT 2853	PAPER NUMBER
			MAIL DATE 11/28/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/772,725

Applicant(s)

DEARDURFF ET AL.

Examiner

Laura E. Martin

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2-12 and 14-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-12 and 14-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-4, 6, 8, 9, 12, 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dearduff et al. (US 6494942 B1) in view of Okura et al. (US 6670037 B1) and Russell (US 5137833 A).

#### **Dearduff et al. disclose the following claim limitations:**

As per claim 3: an ink jet ink having a boronic acid dye and a coated print medium (column 10, line 7 and table 1).

As per claim 2: a printing system wherein a boronic acid dye comprises a boric acid group or boronic acid group (column 4, lines 3-10) and a dye selected from the group consisting of azo, triphenylmethane, anthraquinone, methane, xanthine, oxazine, thiazine, azine, thiazole, quinolinone, aminoketone, nitro, nitroso, phthalocyanine, acridine, indamine, and indophenol (column 2, lines 59-64).

As per claim 12: a method of reducing dye migration on a print medium (column 1, lines 49-55) and a printed image having improved permanence comprising: providing a print medium having a coating layer (column 10, line 7, table 1); applying an inkjet ink comprising a boronic acid dye (column 4, lines 3-10) to the print medium.

As per claim 16: the boronic acid dye comprises a boric acid group or boronic acid group (column 4, lines 3-10) and a dye selected from the group consisting of azo, triphenylmethane, anthraquinone, methane, xanthine, oxazine, thiazine, azine, thiazole, quinolinone, aminoketone, nitro, nitroso, phthalocyanine, acridine, indamine, and indophenol (column 2, lines 59-64).

As per claim 18: a boronic acid dye (column 4, lines 3-10) and a coated print medium (column 10, line 7, table 1).

**Dearduff et al. do not disclose the following claim limitations:**

As per claim 3: a coating layer on the print medium, wherein the coating layer comprises a polyhydroxylated material having at least two hydroxyl groups positioned for binding with the boronic acid dye; and an boronic acid binding with at least one of two hydroxyl groups.

As per claim 4: a polyhydroxylated material that comprises a polyhydroxylated compound having at least two hydroxyl groups on one molecule of the polyhydroxylated compound.

As per claim 6: the at least two hydroxyl groups are positioned on adjacent atoms.

As per claim 8: the polyhydroxylated compound is selected from the group consisting of polyvinyl alcohol, cellulose, a sugar, and a starch.

As per claim 9: the polyhydroxylated material comprises at least two hydroxylated compounds each hydroxylated compound having at least two hydroxyl groups.

As per claim 12: forming a covalent bond between the boronic acid dye and the coating layer.

As per claim 13: a coating layer on the coated print medium comprising a polyhydroxylated material.

As per claim 14: a material comprising a polyhydroxylated compound having at least two hydroxyl groups on one molecule of the polyhydroxylated compound positioned on the same side of the polyhydroxylated compound.

As per claim 15: a material wherein the polyhydroxylated compound is selected from the group consisting of polyvinyl alcohol, cellulose, a sugar, and a starch.

As per claim 17: forming a covalent bond between the boronic acid dye and the coating layer comprises forming a covalent bond between the boronic acid dye and at least two hydroxyl groups in the polyhydroxylated compound or the hydroxyl groups in the at least two hydroxylated compounds.

As per claim 18: boronic acid dye covalently bonded and the polyhydroxylated material comprises at least two hydroxylated compounds each hydroxylated compound having at least two hydroxyl groups.

**Okura et al. disclose the following claim limitations:**

As per claim 3: a coating layer on the print medium, wherein the coating layer comprises a polyhydroxylated material having at least two hydroxyl groups positioned for binding with the boronic acid dye (column 15, lines 3-8)

As per claim 4: a polyhydroxylated material that comprises a polyhydroxylated compound having at least two hydroxyl groups on one molecule of the polyhydroxylated compound (column 15, lines 3-8 - ethylene glycol).

As per claim 6: the at least two hydroxyl groups are positioned on adjacent atoms (column 15, lines 3-8).

As per claim 8: the polyhydroxylated compound is selected from the group consisting of polyvinyl alcohol, cellulose, a sugar, and a starch (column 15, lines 3-8).

As per claim 9: the polyhydroxylated material comprises at least two hydroxylated compounds each hydroxylated compound having at least two hydroxyl groups (column 15, lines 3-8).

As per claim 14: a material comprising a polyhydroxylated compound having at least two hydroxyl groups on one molecule of the polyhydroxylated compound positioned on the same side of the polyhydroxylated compound (column 15, lines 3-8).

As per claim 15: a material wherein the polyhydroxylated compound is selected from the group consisting of polyvinyl alcohol, cellulose, a sugar, and a starch (column 15, lines 3-8)

As per claim 18: the polyhydroxylated material in a coating layer comprises at least two hydroxylated compounds each hydroxylated compound having at least two hydroxyl groups (column 15, lines 3-8).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the printing system of Deardurff et al. with the polyhydroxylated material of Okura et al. in order to produce an odorless ink that produces vibrant

images. It is also well known in the art to use different ink compositions to be printed on paper with different types of coatings.

**Russell discloses the following claim limitations:**

As per claim 3: hydroxyl groups bonding with a boronic acid (column 1, lines 35-45). It would have been obvious to one of ordinary skill in the art that if a boronic acid can covalently bond with the hydroxyl groups of ethylene glycol in Russell, it would be possible for the boronic acid taught by Dearduff et al. to bond with the hydroxyl groups of the ethylene glycol taught by Okura et al.

As per claim 12: forming a covalent bond between boronic acid and a polyhydroxylated material (column 1, lines 35-45). It would have been obvious to one of ordinary skill in the art that if a boronic acid can covalently bond with the hydroxyl groups of ethylene glycol in Russell, it would be possible for the boronic acid taught by Dearduff et al. to bond with the hydroxyl groups of the ethylene glycol taught by Okura et al.

As per claim 17: forming a covalent bond between the boronic acid dye and the coating layer comprises forming a covalent bond between the boronic acid dye and at least two hydroxyl groups in the polyhydroxylated compound or the hydroxyl groups in the at least two hydroxylated compounds (column 1, lines 35-45). It would have been obvious to one of ordinary skill in the art that if a boronic acid can covalently bond with the hydroxyl groups of ethylene glycol in Russell, it would be possible for the boronic acid taught by Dearduff et al. to bond with the hydroxyl groups of the ethylene glycol taught by Okura et al.

As per claim 18: a boronic acid covalently bonded to a polyhydroxylated material (column 1, lines 35-45). It would have been obvious to one of ordinary skill in the art that if a boronic acid can covalently bond with the hydroxyl groups of ethylene glycol in Russell, it would be possible for the boronic acid taught by Dearduff et al. to bond with the hydroxyl groups of the ethylene glycol taught by Okura et al.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink and coating layer taught by Dearduff et al. with the disclosure of Russell to reduce contaminants.

Claims 5, 7, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dearduff et al. (US 6494942 B1), Okura et al. (US 6670037 B1) and Russell (US 5137833 A), and further in view of Kojima et al. (US 5380612).

**Dearduff et al. as modified disclose:** the printing systems of claims 4 and 9.

**Dearduff et al. as modified do not disclose:**

As per claim 5: at the at least two hydroxyl groups are positioned on the same side of the polyhydroxylated compound.

As per claim 7: at least two hydroxyl group are positioned on non-adjacent atoms.

As per claim 10: at least one hydroxyl group on each of the at least two hydroxylate compounds is positioned on the same side of the polyhydroxylated material.

As per claim 11: the hydroxylated compound comprises silica or a modified silica.

**Kojima et al. discloses:**



As per claim 5: at the at least two hydroxyl groups are positioned on the same side of the polyhydroxylated compound (column 8, lines 43-66).

As per claim 7: at least two hydroxyl group are positioned on non-adjacent atoms (column 8, lines 43-66).

As per claim 10: at least one hydroxyl group on each of the at least two hydroxylate compounds is positioned on the same side of the polyhydroxylated material (column 8, lines 43-66).

As per claim 11: the hydroxylated compound comprises silica or a modified silica (column 8, lines 43-66).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the printing system of Deardurff et al. as modified with the disclosure of Kojima et al. in order to better disperse the coating solution.

### ***Response to Arguments***

Applicant's arguments with respect to claims 2-12 and 14-18 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura E. Martin whose telephone number is (571) 272-2160. The examiner can normally be reached on Monday - Friday, 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone


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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Laura E. Martin

  
11/21/07  
**MANISH S. SHAH**  
**PRIMARY EXAMINER**